

Delineation of AWS Service Area - Combe Fill South Landfill

A permanent alternate water supply^{is} to be installed in the area around the Combe Fill South Landfill in Morris County, New Jersey. The extent of the service area for this action was originally confined to those properties where wells had documented contamination or were in imminent danger of being contaminated. Since then a number of factors have indicated that a larger area may be necessary^o the time frame required to implement the landfill remedy has been figured into the extent of the service area for the water supply. In addition, the general ground-water flow direction is now believed to be radial rather than directional in the shallow (saprolite) aquifer, and largely unpredictable in the deep aquifer due to fracturing of the bedrock.

The NJDEP has defined the Well Restriction Area (WRA) according to the rivers and brooks encircling the site: Tanners Brook, the Black (Lamington) River, and Rinehart Brook (see attached map). These waters represent hydrologic barriers, but only for the shallow ground water. Allowing for continued migration over time, the deep ground water may extend beyond the WRA. This is significant because residential wells exist in both aquifers.

EPA has raised questions over the inclusion of properties outside the WRA. However, due to the existence of deep wells on some of these properties and the uncertainty as to rate and direction of deep ground water flow, it seems reasonable to include marginal or peripheral properties in the Potentially Impacted Area (PIA).

The PIA was originally defined as consisting of three categories of properties: those with documented well water contamination, those in imminent danger of being contaminated, and more distant properties that could become contaminated by the time that remedial construction is complete - now estimated to be between five and ten years.

The PIA is probably larger than the WRA, but there is no consensus as^{to} whether they should be considered identical. In fact, since the time frame for remediation is unknown, no basis exists to define precisely the extent of the PIA. Therefore, the WRA should be considered the minimum service area, as it pertains only to the shallow ground water. Nearby outlying properties with deep wells should be included, as well, along with their immediate neighbors or neighborhoods.

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EPA requested documentation from the State to justify increasing the extent of the service area. The rationale developed was intended to provide an objective means of delineating the service area precisely. However, the RI revealed that ground water flow rate and direction could not be easily determined in either aquifer. Lack of adequate characterization data therefore necessitates a conservative approach to defining the service area.

Another factor that complicates the issue is rigid boundaries that cut through neighborhoods or run along streets and roads. Although adjacent properties may have wells tapping different aquifers (i.e., different depths), the lack of an impermeable layer precludes well depth/choice of aquifer as a boundary criterion. Moreover, given the inconclusive hydrogeologic data available, any such criterion could easily be taken to be arbitrary and capricious.

Finally, an earlier NJDEP cost analysis (and common sense) indicates that the cost of hooking up questionable houses is far preferable to a monitoring program for individual non-isolated properties.